MICHIGAN'S PUBLIC SAFETY COMMUNICATIONS SYSTEM

Volume 1, Issue 1
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MPSCS NEWSLETTER

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UPCOMING EVENTS

Training
Contact: Gloria Cline
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- Jan. 12-15 (Saginaw)
- Feb. 9-12 (Negaunee)
- March 16-19 (Lawrence)

QUICK STATS

- TOTAL RADIOS: ***47,430***
- AMOUNT ADDED IN LAST QUARTER: ***1,167***

FUN FACT

- **65%** of MPSCS' 222 towers are between 400 and 500 feet tall.

MPSCS Remains on the Forefront of Communication Systems

During its design and initial execution, the Michigan's Public Safety Communications System (MPSCS) hoped to service 10,000 radios within the State. Currently, over 47,000 radios are in use and operating within the original performance goals and standards. The MPSCS has proven its versatility in implementing new strategies to handle increasing demand.

The MPSCS was the first statewide Project-25 compliant system in the nation; during its implementation, Maryland was the only other state with full interoperability on its agenda. MPSCS remains the largest interoperable public safety system in North America.

For its unprecedented success, MPSCS was included in eight finalists for the ACT/IAC Intergovernmental Solutions Awards in 2005.

Reaching a record-high nine-million Push-To-Talk's (PTT's) in August of 2008, users are demonstrating acceptance and appreciation for convenient elements of the system. The MPSCS handles many diverse needs of its clients, from creating special talk groups to being able to utilize Point-To-Point (PTP) technology that sends signals directly from tower to tower, a very cost-effective and efficient method for some smaller agencies. Integrated Voice and Data (IV&D) are also available with improved components on the horizon.

Although the system originally intended on providing network communications solely to State organizations, it has proven its value to agencies from dispatching centers and fire departments to the DNR and DHS.

With the United States' constant demand for improved communication systems, the MPSCS will be working hard to exceed expectations for many years to come.

Monroe County's Cross-Border Communications with Ohio

Monroe County collaborated with officials in Lucas County, Ohio, to create a cross-border solution to their radio complications.

Because of FCC regulations on radio frequencies, a 4-site simulcast system was designed to meet Monroe County's communication needs. However, in-building portable coverage issues along and across the border of Ohio arose.

Minds from Monroe County, MPSCS, and Motorola concluded that a fifth tower site was needed to solve the coverage problems. At that same time, Lucas County was developing an 800 MHz system with Motorola. The two counties developed a plan to incorporate infrastructure from both systems at a single, 180-foot tower site.

Each county funded its own portion of construction and necessary equipment, yet by not having to erect their own tower, Monroe County saved between $200,000 and $400,000.

Major David Thompson, from the Monroe County Sheriff Department, says that augmenting infrastructure was not the only thing that improved communications amongst the two counties. "We provided them with radios to patch into the MPSCS system. We're now able to communicate through special talkgroups."

The shared tower and talkgroups have increased the ability of Michigan Public Safety to provide mutual aid and other services to Ohio. The communication quality for Monroe County has greatly improved and a prime example of cross-border interoperability is on display.

RPU Programs 250 Radios Per Month

A vital portion of the MPSCS staff is the Radio Programming Unit (RPU). This group of four skilled professionals programs 250 new subscriber radios each month, on average.

Each agency that joins the system, or those that require additional radios and infrastructure, collaborates with the RPU to decide not only what they need, in terms of talk-groups, but also which methods will work best to obtain them, such as authorization and system coverage.

"Each agency that joins the system… collaborates with the RPU…"

Depending on the model and manufacturer of the agency's chosen radios, alterations in design and software are considered and the RPU changes their processes for template creation.

Motorola was the first brand of radio available to subscribers and remains the most commonly used on the system. MPSCS also supports EF Johnson and Kenwood with hopes of approving two additional vendors shortly, M/A-Com and Tait. As manufacturers develop new Project-25 compliant radios, they will be tested on the system and made available to MPSCS users.

With the system's capability to add countless numbers of radios to the Public Safety and Service fields, the RPU will continue with efficient forward progress and helpful, knowledgeable service.

From "The Guy" to "The Director"
One Man's Journey to the Top

MPSCS' Director, Brad Stoddard, leads the country's largest interoperable public safety communications system and had a large part in its implementation and management.

Brad, born and partially raised in Northern Michigan, gained a Bachelor of Science degree in Electrical Engineering in Colorado. After which, he worked for the Department of Defense (DOD) at the Joint National Test Facility in Colorado Springs, CO.

His background with the DOD made him a perfect candidate for a position with the Michigan State Police. Brad was one of the elemental engineers responsible for design oversight and construction of the Michigan's Public Safety Communications System. While with the Michigan State Police (MSP) and working with MPSCS, Brad also implemented the asset management and maintenance tracking system, known as MP2, which is still in use to track and support the $240 million communications system.

Director Brad Stoddard leads the country's largest interoperable communications system into the future.

Because of his dedication to MP2, Brad gained the nickname "The MP2 Guy" yet before long, people began referring to the tall, black-haired engineer simply as "The Guy." Brad went on to manage the mobile computing unit that started the rollout, support and engineering of future mobile computing technologies.

Michigan's Department of Information Technology (MDIT) was formed during Brad's tenure with MSP; he rose quickly through various MDIT positions, from managing development teams for LEIN and Criminal History Records to working on other projects, such as the Next Generation Patrol Car and MSP's main frame migration.

One of the key criminal justice solutions that he designed and made happen during the migration to MDIT was the Michigan Criminal Justice Information Network (MiCJIN.) This solution allowed criminal justice users to be more mobile by permitting them to work from a virtual place, logging in and accessing criminal justice applications.

The Gartner Group touted this solution as the model for other public and private entities for identity access and management. Just as the MPSCS was the model for radio communications, MiCJIN set the same bar for identity management. Lt. Col. Kriste Etue, Deputy Director of the Administrative Services Bureau for the Michigan State Police, stated, "Brad's accomplishments have transformed the way we do business and helped position us as an agency that others benchmark against when designing or procuring new systems."

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Emergency Generators Prepared for Anything

Freezing temperatures, ice formation and high-speed winds may be areas of concern for many users of the MPSCS. However frightening and full-of-annoyance these typical Michigan happenings may be, you need not despair when it comes to the workings of your communication equipment.

Prepared for severe cases of inclement weather and/or natural disasters, each of MPSCS' 222+ towers has several layers of safeguards, including a back-up power supply. Generators are equipped and ready to automatically provide electrical energy, ensuring the system continues operating smoothly. There is enough fuel on site to power all equipment for five to seven days before additional resources are required.

At each tower site, heating and cooling elements are in place and regularly maintained. The UPS and microwave batteries are assessed semi-annually and the oil, coolant, battery, and belts of the generators are serviced equally as often.

Each Monday, the NCC (Network Communications Center) conducts a full-load test on each generator for at least 30 minutes to guarantee complete performance in the event of a crisis.

The equipment showed its true protection abilities during the blackout crisis of 2003. While many communication systems in the Northeastern United States failed, thirteen MPSCS back-up generators turned on the moment the blackout occurred. Michigan's system never faltered.

Regardless of Mother Nature's attempts to disrupt the system, MPSCS is always prepared to deliver full-functionality to its users.

REBANDING:
Completing the Third Step

In July of 2004, the FCC issued a Consent Order directing all Public Safety communication systems in the United States, operating on the 800 MHz frequencies, be rebanded to a new Public Safety band.

Substantial interference between cellular phone usage on the adjacent frequencies, particularly those operated by Sprint-Nextel, was the motivation for the changeover.

The cost of rebanding the communication infrastructure (estimated to total between $4 billion and $6 billion) will be paid entirely by Sprint-Nextel. In compensation, it will receive equivalent additional bandwidth.

"Before this step can be finalized, the FCC must issue new frequencies to all states in the fourth "wave."

The entire United States was broken up into four "waves" and each of which was designed to be completed on its own timeframe. All border states (including Michigan) have been grouped in the final "wave," as treaty agreements with both Canada and Mexico needed to be negotiated before frequencies could be allocated. Michigan began the lengthy process in October of 2006.

In June of 2007, all MPSCS subscribers were mailed a letter detailing Michigan's portion of the proposed project. It consists of seven steps. The first two, preparing a Request for Planning Funds and negotiating a Planning Funding Agreement with Sprint-Nextel, are complete.

Currently, the third step is close to completion. Finishing touches are being made on the plan that describes how the physical rebanding of the radios and communication infrastructure will occur. An estimated budget is in the works, as well.

Before this step can be finalized, the FCC must issue new frequencies to all states in the fourth "wave." The most recent estimate is that they will be released in February of 2009.

MPSCS, along with its contractual project partners, RCC Consulting, Motorola and Project Managers, LLC, has updated the target dates. It is anticipated that the actual rebanding of radios may not begin until the spring of 2010, resulting in an estimated completion date for the entire project in August of 2011.

Updates will appear in each future issue of this Newsletter. However, detailed project information, upcoming events, and up-to-date progress reports can be found at the Rebanding Project's website: http://www.rccpm.com/MI800MHz/default.aspx.

Communication Technology: Multi-Band Radios

Interoperability is key for Public Safety communications. Enhancing equipment to improve upon interoperable standards, without drastically raising numbers on the price tag, is essential.

A multi-band radio (MBR) does just that. It can operate on several frequency bands by means of a switch, yet technology is approaching that would allow the radio to utilize various bands simultaneously.

Last February, the Department of Homeland Security's Science and Technology Directorate awarded a $6.725 million contract to Thales Communications, Inc. to create a prototype MBR. It is called the Thales Liberty and can operate in all public Federal Government bands.

Pilot tests with the radio are being conducted by multiple agencies across several systems, including one that uses technology similar to that of the MPSCS. It is estimated that this versatile radio will sell for $4,000 to $6,000.

Motorola introduced a multi-band radio of their own in August of 2008 with mobile and handheld versions. The item is capable of switching from the 700 and 800 MHz bands to VHF. These models, APX 7500 and APX 7000, have not yet been tested on the MPSCS system but will be as soon as they are made commercially available.

Both manufacturers are expected to release the radios for sale in mid-2009.

Enhancing Your Radio's In-Building Coverage

Some MPSCS users find that their portable radios do not function as well inside as they do outside. There are many possible explanations; most of them deal with the specific building's construction materials.

The metal base-pan of concrete flooring and the foil lining of multiple sorts of insulation are the probable causes for most interference. Metal window screens and modern, energy-efficient windows can also reduce signal transmittance.

Bi-Directional Amplifiers (BDAs) are currently in use by many subscribers. BDAs are a type of wireless signal booster that utilizes an external reception antenna, a signal amplifier and an internal rebroadcast antenna to improve the ability of portable radios to transmit clear signals from inside buildings.

Various situations have arisen where increased in-building reception has been crucial to Public Safety communications. BDAs have helped to solve this problem.

Chippewa County has installed three BDAs. Tim McKee, Director of the county's central dispatch center, says, "[the BDAs] alleviate the in-building portable coverage issue." The City-Council building, one of the three problem-areas, is home to the District Court, Sault Ste. Marie Police, and County Sheriff Department. Understandably, portable coverage was critical to various departments within the building.

After the addition of a BDA, users are able to freely communicate from inside to outside, and vice versa, with no complications. McKee recommends the addition of BDAs to other agencies' infrastructure if they find themselves in similar situations.

He also notes, "the assistance that we obtained from the MPSCS engineers was very helpful in assuring that we ordered the correct equipment to solve the problem."

The staff at MPSCS are always keeping their eyes and ears open to new ways of improving the ability of its communications equipment to better serve the needs of its users.

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Comments or suggestions are appreciated!

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Usage Statistics

2008	Total Calls	PTTs	PTT Change From 2007
OCT	4,253,914	7,738,961	+277,326
NOV	3,913,486	7,144,914	+285,549
DEC	4,086,884	7,467,709	+ 464,299

Want additional information?

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For the following five years, Brad served as the Client Service Director (CSD) for the Michigan State Police, the Departments of Military & Veterans Affairs, and the Michigan Department of Transportation (MDOT). "Brad did a wonderful job when he worked here at MDOT. Apart from his technical expertise, he has great people skills…which allowed him to really help us at a time when we needed some leadership," Leon Hank, Chief Administrative Officer for MDOT said when asked about his thoughts on Brad.

During his tenure as CSD with department, strategic plans, initiatives, and directions were developed and forged to move the agencies forward in the direction of technology utilization and standardization. Strengthened relationships and enhanced partnerships have aided the agency he works for and the agencies he has worked with.

MDIT Director Ken Theis asked Brad to return to the MPSCS earlier this year, bringing with him his evolved leadership skills, expertise in client relations, vendor partnerships and extensive knowledge of the communications system. "With his many skill sets and previous experience with the public safety communications system, Brad was the perfect selection for the job," said Theis. "I have great confidence in Brad's ability to build relationships and meet with local government and emergency first responders as we continue to build and grow the best statewide communications system in the country."

Having been a previous Director of MPSCS, Ret. Lt. Col. Tom Miller, who now works for Motorola as Director of Public Safety Programs, said, "When I heard Brad was selected to be Director, I was pleased… Given Brad's past experience working on staff at MPSCS, his technical skills and his knowledge of the overall Public Safety system, I knew he'd do a great job moving the business forward."

He is doing just that, bringing forth innovative ideas and advanced thinking to MPSCS and all its subscribers. The future of the MPSCS has many opportunities for Michigan, and it will continue to keep itself as the nation's model for interoperable communications, voice and data.

Keep Your Eyes Open for the NEXT ISSUE of the *MPSCS Newsletter*:

- Budget/Funding Information
- Firefighter Integration
- VHF Narrow-banding Mandate
- Genesee's Sub-System
- Rebanding Update
- Point-To-Point Technology
- MPSCS Staff Bio
- ...and more!